

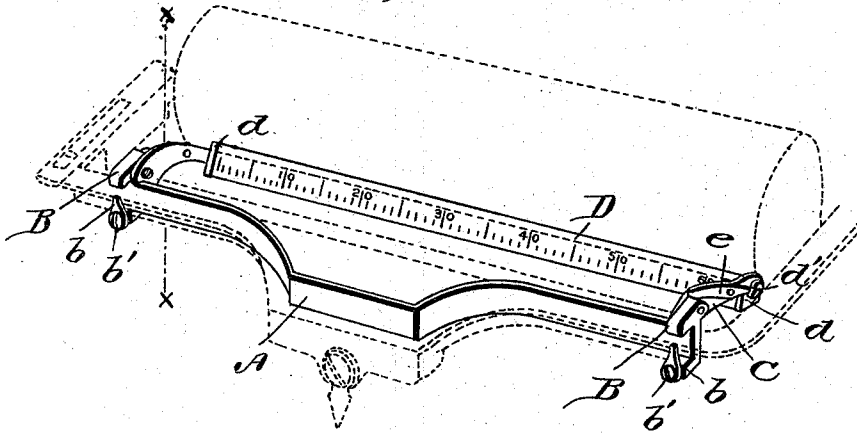
(No Model.)

N. W. HARTWELL & T. J. HOWE.  
ATTACHMENT FOR TYPE WRITING MACHINES.

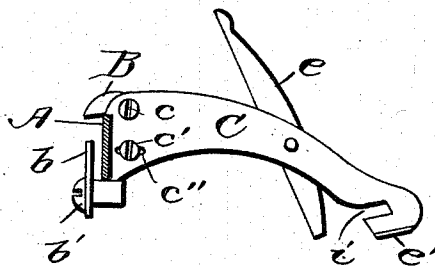
No. 528,092.

Patented Oct. 23, 1894.

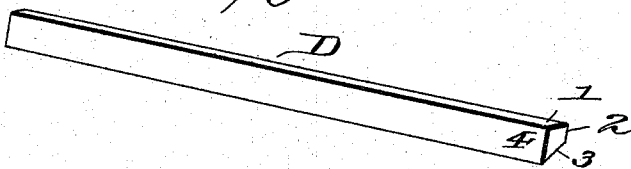
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

NEWTON W. HARTWELL AND THOMAS J. HOWE, OF LOUISVILLE, KENTUCKY.

## ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 528,092, dated October 23, 1894.

Application filed February 26, 1894. Serial No. 501,579. (No model.)

*To all whom it may concern:*

Be it known that we, NEWTON W. HARTWELL and THOMAS J. HOWE, citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Attachments for Type-Writing Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to that class of improvements in attachments for type-writing machines in which the object is to enable the operator to see the characters as they are formed.

The object of our invention is to clearly present to the eye of the operator the correct image of the characters, simultaneous with their formation and to indicate by a scale their position on the writing surface.

In the drawings which form a part of this application, Figure 1 is a perspective view of our invention applied to the upper portion of the frame of a Remington type-writer, the latter and the platen being shown in dotted lines. Fig. 2 is a view of one part of our device on the line  $x-x$ , Fig. 1. Fig. 3 is a perspective view of the reflecting and refracting prismoid which constitutes an important part of our invention.

A represents a metal bracket which in this case we have constructed in a form readily applicable to the cross-frame of a type-writer of the style known as the Remington. This bracket A is provided at each end with shoulders or lugs B to the lower portion of which are secured, by screws  $b'$ , small tongues  $b$  which act as frictional latches on the type-writer frame when the screws are tightened. From the shoulders B depend arms C secured thereto by screws  $c$ ,  $c'$ , the latter passing through slot  $c''$  in the arms to permit of the adjustment of the arms when necessary to raise or lower the prismoid D. Pivoted to each arm is a latch  $e$  which holds the prismoid when placed in position in the slot  $i$  in

the arm C, by bearing against the pivot  $d'$  on the prismoid and closing the slot  $i$ .

The prismoid D is composed of flint, crown or plain glass, with faces 1, 2, 3 and 4 and angles which we have found by experiment produce a refractive and reflective result which enables the operator to see in a correct position the letters as they are formed on the writing surface placed on the platen. When the prismoid is applied to a type-writing machine in a correct position with the rays of incidence falling at approximately right angles with the plane of the face 1, we secure a reflective surface or "field of vision" in the lower portion of the face 4 from which the rays of emergence are thrown at approximately right angles with said face. This is caused by the rays being bent in passing through the face 1 so that they are inverted on the face 2 from which they are re-inverted on the face 3 so that they appear on the face 4 in their correct or original position. On either end of the prismoid is a metal sleeve  $d$  with a pivot or pin  $d'$  which fits into the slot  $i$  in the arm C. To prevent the prismoid from turning on the pivot  $d'$ , and at the same time secure the exact adjustment of the prismoid necessary to produce the desired result, the arms C, have their lower and outer ends turned up to form a bearing surface  $e'$  for the prismoid, to hold it at the proper angle. Upon the face 1 of the prismoid is etched or otherwise provided the scale used to indicate the spacing of the letters on the type-writer.

In applying our device to a type-writer of the form indicated, after locking the prismoid in position between the arms C by inserting the pivots  $d'$  in the slots  $i$  and pressing down the upper ends of the latches  $e$  until their lower ends impinge against the pivot  $d'$ , the attachment is adjusted to the frame of the machine so that the prismoid is below the platen and just far enough from the point of impression of the type on the writing surface to prevent the type bars from striking the prismoid. The type impression is refracted through the face 4 and reflected from the face 3 in a correct position relative to its shape and to the word or line of which it forms a part, and the operator is

enabled to see it without changing position from that commonly taken in the use of the type-writing machine. While in the drawings and in the foregoing description, we  
5 have shown our invention as applied to but one form of type-writer it is apparent that the prismoid which we employ may be applied to other forms of machines in which  
10 the writing or letter impression is made by the type striking upward against the platen, it being only necessary to modify the bracket or means of adjusting the prismoid to the machine.

We have made separate application for  
15 Letters Patent on the peculiar form of the prismoid shown in this application the same having been filed July 19, 1893, and serially numbered 480,887.

We are aware that single reflecting surfaces  
20 have been used in type-writing machines, which reverse the image reflected therein, and that two reflectors have been used so that the inverted image in the one is

shown correctly in the other; and we are also aware that a transparent prism having a reflecting backing or base has been used which shows the image in a correct position. We do not claim broadly any one of these devices.

What we do claim, and desire to secure by Letters Patent, is—

An attachment for type-writing machines composed of brackets adjustably secured to the frame of the machine, arms depending from said brackets and adjustable thereon, and a refracting and reflecting prism rhomboidal in cross section, supported by said  
35 arms in the manner and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

NEWTON W. HARTWELL.  
THOMAS J. HOWE.

Witnesses:

JOHN S. CARPENTER,  
DAN L. SAUER.